

- 1 We claim:
- 2 1. A method for producing a pigment, comprising:
- 3 a) adding a phosphorus compound to an aqueous suspension of titanium dioxide base
4 material, then
- 5 b) adding a titanium compound; and
- 6 c) adding an aluminum compound.
- 1 2. The method of claim 1, further comprising:
- 2 d) adjusting the pH value of the suspension to a value of from 8 to 10.
- 1 3. The method of claim 1, wherein the added phosphorus compound is an inorganic
2 phosphorus compound.
- 1 4. The method of claim 3, wherein the inorganic phosphorus compound is selected from
2 the group consisting of alkali phosphates, ammonium phosphates, polyphosphates,
3 and phosphoric acid.
- 1 5. The method of claim 1, wherein the added phosphorus compound is 0.4 to 6.0% by
2 weight calculated as P_2O_5 , referred to TiO_2 base material in the suspension .
- 1 6. The method of claim 5, wherein the added phosphorus compound is 1.0 to 4.0% by
2 weight, calculated as P_2O_5 , referred to TiO_2 base material in the suspension .
- 1 7. The method of claim 6, wherein the added phosphorus compound is 1.6 to 2.8% by
2 weight, calculated as P_2O_5 , referred to TiO_2 base material in the suspension .

- 1 8. The method of claim 1, wherein the titanium compound added is a hydrolyzable
2 titanium compound.
- 1 9. The method of claim 8, wherein the titanium compound added is selected from the
2 group consisting of titanyl sulphate and titanyl chloride.
- 1 10. The method of claim 8, wherein the quantity of titanium compound added is 0.1 to
2 3.0% by weight, calculated as TiO_2 , referred to TiO_2 base material in the
3 suspension.
- 1 11. The method of claim 10, wherein the quantity of titanium compound added is 0.1 to
2 1.5% by weight, referred to TiO_2 base material in the suspension.
- 1 12. The method of claim 11, wherein the quantity of titanium compound added is 0.1 to
2 1.0% by weight, calculated as TiO_2 , referred to TiO_2 base material in the
3 suspension.
- 1 13. The method of claim 1, wherein the quantity of titanium compound added is 0.1 to
2 1.0% by weight, calculated as TiO_2 , referred to TiO_2 base material in the
3 suspension.
- 1 14. The method of claim 1, wherein the aluminum compound added is alkaline.
- 1 15. The method of claim 14, wherein the alkaline aluminum compound is selected from
2 the group consisting of sodium aluminate, alkaline aluminum chloride, and alkaline
3 aluminum nitrate.

1 16. The method of claim 14, further comprising

2 d) adjusting the pH value of the suspension to a value of from 8 to 10 after step c).

1 17. The method of claim 1, wherein the aluminum compound added is acidic.

1 18. The method of claim 17, further comprising:

2 d) adjusting the pH value to a value between 8 and 10 by adding an alkaline aluminum
3 compound.

1 19. The method of claim 17, further comprising:

2 d) adjusting the pH value to a value between 8 and 10 by adding an alkaline aluminum
3 compound in combination with a base.

4 20. The method of claim 1, wherein during the addition of the aluminum compound, the
5 pH value of the suspension is maintained constant in the range from 2 to 10 by the
6 simultaneous addition of a pH modifying compound.

1 21. The method of claim 20, wherein during the addition of the aluminum compound, the
2 pH value of the suspension is maintained constant in the range from 4 to 9 by the
3 simultaneous addition of a pH modifying compound.

4 22. The method of claim 21, wherein during the addition of the aluminum compound, the
5 pH value of the suspension is maintained constant in the range from 6 to 8 by the
6 simultaneous addition of a pH modifying compound.

1 23. The method of claim 1, wherein the total quantity of the aluminum compounds added
2 is 2.0 to 7.5% by weight, calculated as Al_2O_3 , referred to TiO_2 base material.

1 24. The method of claim 23, wherein the total quantity of the aluminum compounds
2 added is 3.5 to 7.5% by weight, calculated as Al_2O_3 , referred to TiO_2 base material.

1 25. The method of claim 1, further comprising

d) adding a magnesium compound.

1 26. The method of claim 25, wherein the magnesium compound added is selected from
2 the group consisting of magnesium sulphate and magnesium chloride.

1 27. The method of claim 25, wherein the quantity of magnesium compound added is 0.1
2 to 1.0% by weight, calculated as MgO , referred to TiO_2 base material in the
3 suspension.

1 28. The method of claim 27, wherein the quantity of magnesium compound added is 0.2
2 to 0.5% by weight, calculated as MgO , referred to TiO_2 base material in the
3 suspension.

1 29. The method of claim 25, further comprising

2 e) treating the pigment with an added material in order to influence the final pH value of
3 the suspension wherein the final pH value of the pigment is controlled by the pH
4 and the quantity of the added material.

1 30. The method of claim 29, where the added material is a nitrate compound.

1 31. The method of claim 30, where the finished pigment contains up to 1.0% by weight
2 NO_3

1 32. The method of claim 29, further comprising;

2 incorporating the pigment produced into a decorative laminating paper.

1 33. The method of claim 29, further comprising;

2 incorporating the pigment produced into a resin.

1 34. The method of claim 1, where the titanium dioxide base material is milled before step
2 a).

1 35. The method of claim 34, where the titanium dioxide base material is wet-milled and
2 where a dispersant is added during milling.

1 36. The method of claim 1, further comprising;

2 incorporating the pigment produced into a decorative laminating paper.

1 37. The method of claim 1, further comprising;

2 incorporating the pigment produced into a resin.

1 38. The method of claim 25, further comprising;

2 incorporating the pigment produced into a decorative laminating paper.

1 39. The method of claim 25, further comprising;

2 incorporating the pigment produced into a resin.

1 42. A material, comprising;

2 a titanium dioxide pigment material; the titanium dioxide comprising a very large plurality
3 of TiO₂ particles, each particle having a surface;

4 phosphorus containing material attached to the surface of each particle;

5 titanium containing material additional to the titanium dioxide material of the surface
6 attached to the phosphorus containing material; and

7 aluminum containing material attached to the titanium containing material additional to
8 the titanium dioxide material of the surface.

1 43. The material of claim 42, further comprising;

2 magnesium containing material attached to the aluminum containing material.

1 44. The material of claim 42, further comprising;

2 nitrate containing material attached to the aluminum containing material.

1 45. The material of claim 42, further comprising;

2 nitrate and magnesium containing material attached to the aluminum containing material.

1 46. The material of claim 42, wherein the resultant particles contain an insignificant
2 amount of zirconium.

1 47. The material of claim 42 further comprising a decorative laminated paper.

1 48. The material of claim 42 further comprising a resin.